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(54) **SYSTEM AND METHOD FOR A MODULAR, LOCKING HEADRAIL-RETENTION MECHANISM**

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E06B 9/323 (2006.01)

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CPC ***E06B 9/323*** (2013.01); *Y10T 403/60* (2015.01)

(58) **Field of Classification Search**
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USPC ...... 160/168.1 R, 368.1 R; 211/105.1–105.4; 248/251–259, 261–272; 401/109, 115, 401/116; 403/109.1, 109.2, 109.3, 109.5, 403/292, 298, 304, 308, 314, 325–327
See application file for complete search history.

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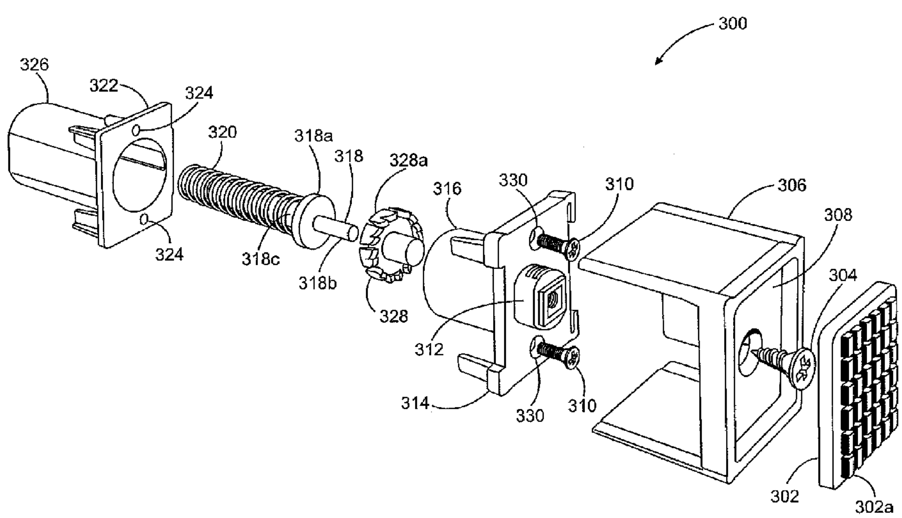
(57) **ABSTRACT**

In accordance with the present disclosure, a system and method for Modular, Locking Headrail-Retention Mechanism is described. The module, locking headrail-retention mechanism may, in certain embodiments be separate from a headrail, and insertable into at least one end of the headrail. In other embodiment, the locking headrail-retention mechanism may be manufactured as part of the headrail. The locking headrail-retention mechanism may comprise a cylindrical housing and a first cam disposed within the cylindrical housing. The locking headrail-retention mechanism may also include a retention plate proximate one end of the cylindrical housing and axially aligned with the first cam. A biasing member may be disposed within the cylindrical housing, and may impart an axial force on the first cam. The first cam may be operable to selectively prevent the axial force from being imparted on the retention plate.

30 Claims, 4 Drawing Sheets



d-Retention Mechanism

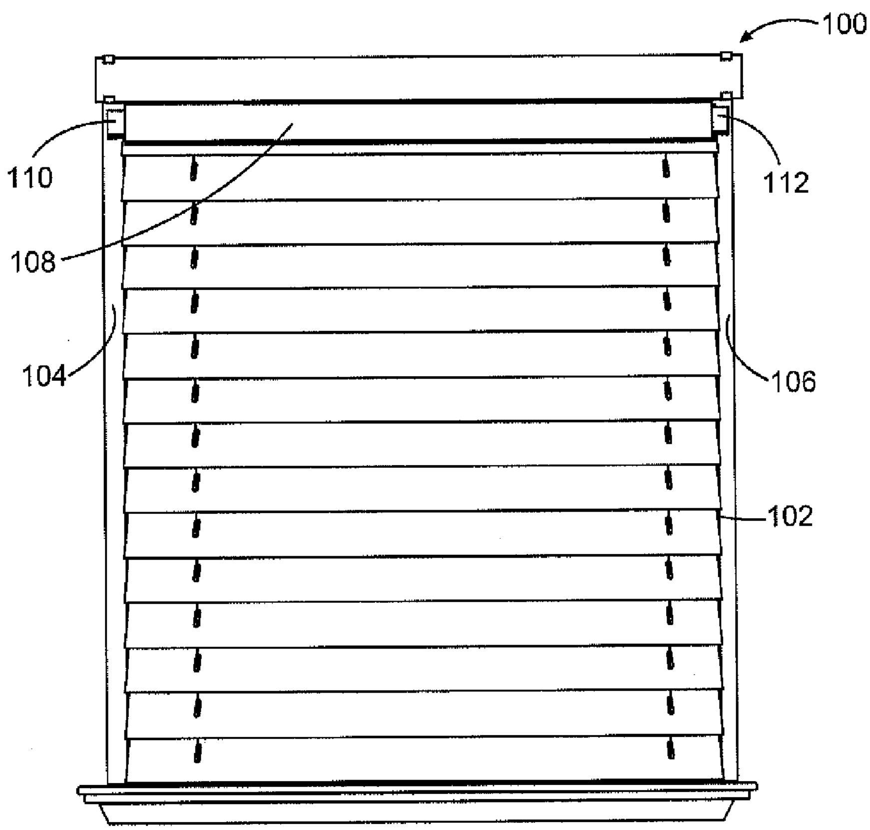


Fig. 1

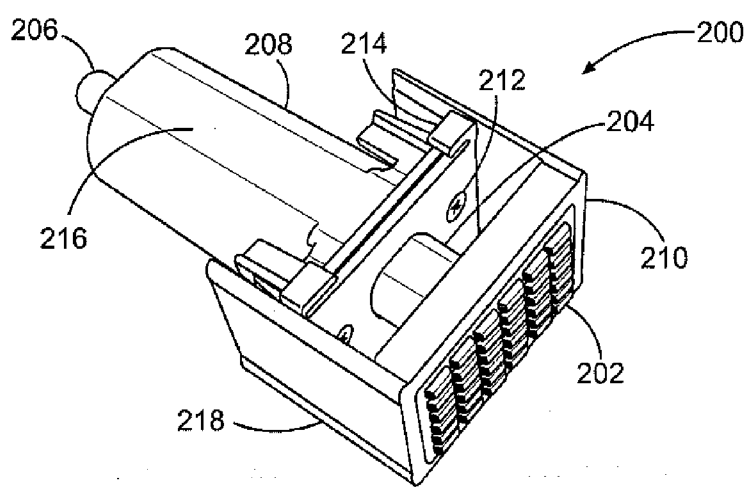


Fig. 2

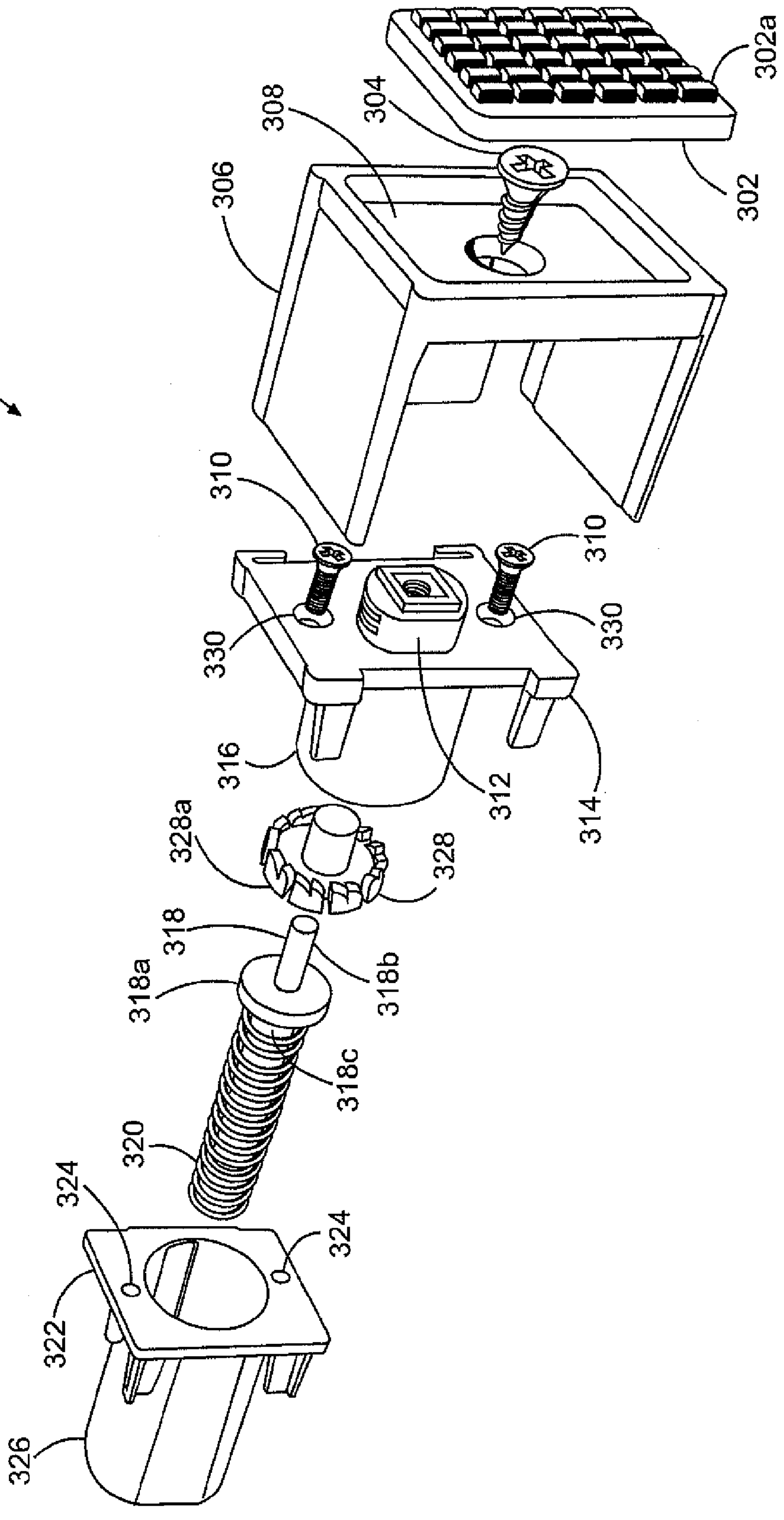

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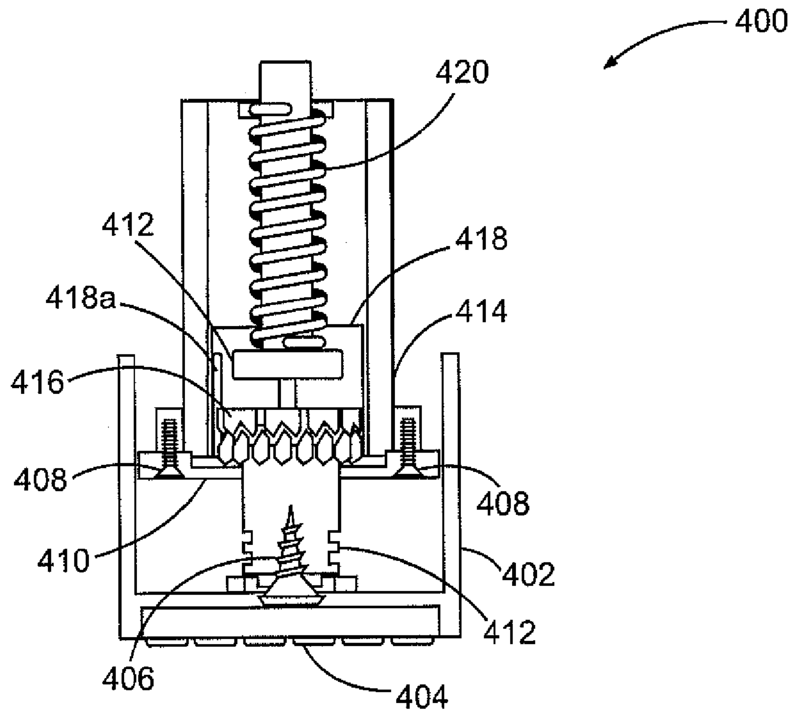
Fig. 3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404

Fig. 4A

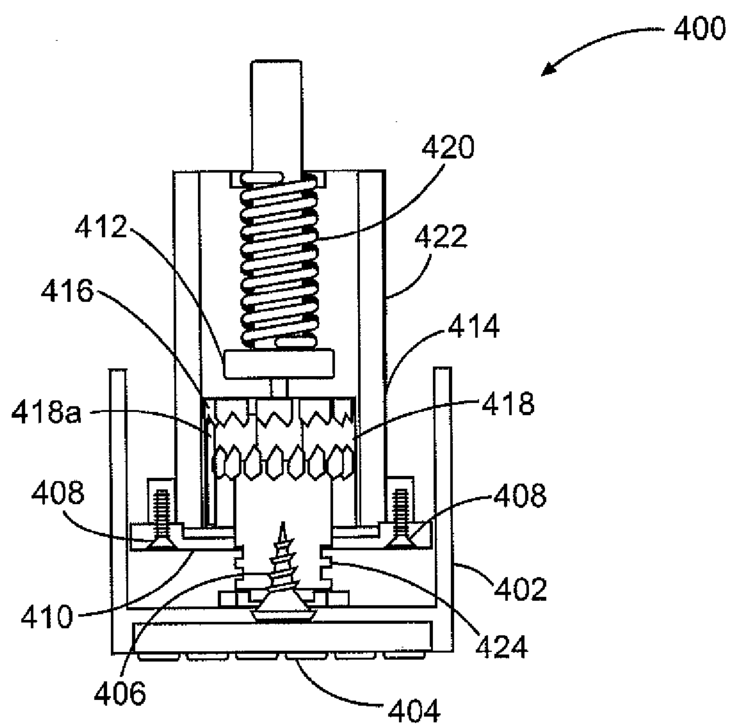
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Fig. 4B

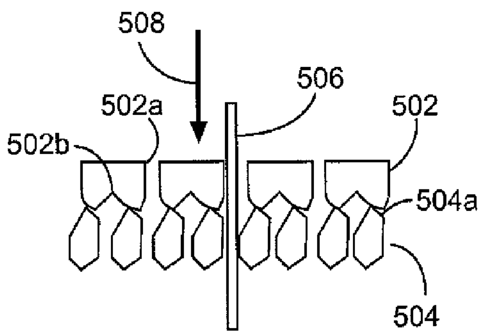

Fig. 5A

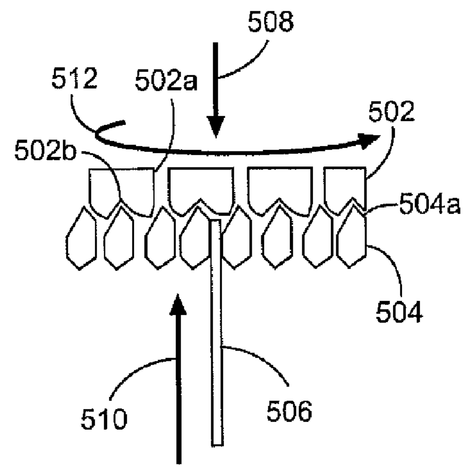

Fig. 5B

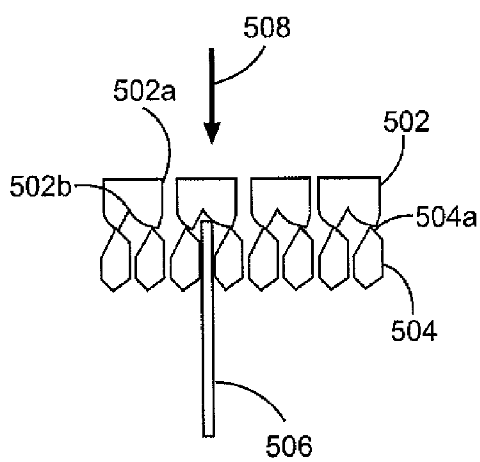

Fig. 5C

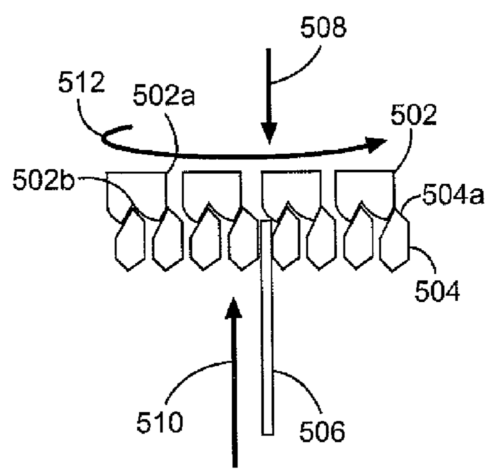

Fig. 5D

SYSTEM AND METHOD FOR A MODULAR, LOCKING HEADRAIL-RETENTION MECHANISM

TECHNICAL FIELD

The present disclosure relates generally to the operation of computer systems and information handling systems, and, more particularly, to a System and Method for a Modular, Locking Headrail-Retention Mechanism.

BACKGROUND

Window coverings, including blinds and shades, are ubiquitous in homes and businesses. Typical blinds and shades require installation with brackets affixed to the wall. Installation can be an involved process, with numerous steps, tools, and measurements to account for, which can be intimidating for some homeowners. Additionally, it may require tools or expertise that the homeowners do not have, leading many to rely on professionals for installation. This can be inconvenient and expensive. What is needed is a way for homeowners to install window coverings themselves, without requiring multiple tools or any particular expertise in hanging window coverings.

SUMMARY

In accordance with the present disclosure, a system and method for Modular, Locking Headrail-Retention Mechanism is described. The module, locking headrail-retention mechanism may, in certain embodiments be separate from a headrail, and insertable into at least one end of the headrail. In other embodiment, the locking headrail-retention mechanism may be manufactured as part of the headrail. The locking headrail-retention mechanism may comprise a cylindrical housing and a first cam disposed within the cylindrical housing. The locking headrail-retention mechanism may also include a retention plate proximate one end of the cylindrical housing and axially aligned with the first cam. A biasing member may be disposed within the cylindrical housing, and may impart an axial force on the first cam. The first cam may be operable to selectively prevent the axial force from being imparted on the retention plate.

In accordance with certain embodiments, a method for positioning and maintaining a headrail in a compression fit engagement is disclosed. The method may comprise locking a biasing member into a compressed position. The biasing member may be positioned inside of a headrail when locked or may be located outside of the headrail when locked and then inserted into the headrail. The method may further include positioning an end of the headrail proximate to an engagement surface, and unlocking the biasing member. Unlocking the biasing member may cause the end of the headrail to form a compression fit engagement with the engagement surface.

The present disclosure allows for certain advantages over typical headrail hanging mechanisms. First, instead of an installation process requiring multiple tools and fixed brackets that are screwed into the wall, the locking headrail-retention mechanism described herein allows for a tool-less installation that can be completed by a "do-it-yourself" homeowner without extensive experience in hanging window coverings. Additionally, the modular, locking headrail-retention mechanism may be manufactured separately from the headrail, and interchangeable with headrails of various sizes. Other technical advantages will be apparent to those of ordinary skill in the art in view of the following specification, claims, and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete understanding of the present embodiments and advantages thereof may be acquired by referring to the following description taken in conjunction with the accompanying drawings, in which like reference numbers indicate like features, and wherein:

FIG. **1** shows an example headrail with a modular, locking headrail-retention mechanism, according to aspects of the present disclosure.

FIG. **2** shows an isometric view of an example modular, locking headrail-retention mechanism, according to aspects of the present disclosure.

FIG. **3** shows an expanded view of an example modular, locking headrail-retention mechanism, according to aspects of the present disclosure.

FIG. **4***a* shows a cross section of an example modular, locking headrail-retention mechanism with the biasing member unlocked, according to aspects of the present disclosure.

FIG. **4***b* shows a cross section of an example modular, locking headrail-retention mechanism with the biasing member locked in a compressed state, according to aspects of the present disclosure.

FIGS. **5***a-d* show the functionality of an example cam mechanism, according to aspects of the present disclosure.

While embodiments of this disclosure have been depicted and described by reference to exemplary embodiments of the disclosure, such references do not imply a limitation on the disclosure, and no such limitation is to be inferred. The subject matter disclosed is capable of considerable modification, alteration, and equivalents in form and function, as will occur to those skilled in the pertinent art and having the benefit of this disclosure. The depicted and described embodiments of this disclosure are examples only, and not exhaustive of the scope of the disclosure.

DETAILED DESCRIPTION

The present disclosure relates generally to the operation of computer systems and information handling systems, and, more particularly, to a System and Method for a Modular, Locking Headrail-Retention Mechanism

Illustrative embodiments of the present invention are described in detail below. In the interest of clarity, not all features of an actual implementation are described in this specification. It will of course be appreciated that in the development of any such actual embodiment, numerous implementation specific decisions must be made to achieve the developers' specific goals, such as compliance with system related and business related constraints, which will vary from one implementation to another. Moreover, it will be appreciated that such a development effort might be complex and time consuming, but would nevertheless be a routine undertaking for those of ordinary skill in the art having the benefit of the present disclosure.

Shown in FIG. **1** is an example window covering **100** comprising a headrail **108** with modular, locking headrail-retention mechanisms **110** and **112** positioned on either end. As can be seen, the headrail **108** may support shade **102**, which may be raised and lowered using mechanisms coupled to the headrail **108**. In certain embodiments, as will be described below, the modular, locking headrail-retention mechanisms **110** and **112** may include a generally cylindrical portion that is sized to be installed into a cylindrical opening at either end of the headrail **108**. The modular aspect of the mechanisms **110** and **112** may allow the headrail **108** to be easily interchanged, and manufactured inexpensively. In other certain embodiments, the modular, locking headrail-retention mechanisms **110** and **112** may be manufactured within the headrail **108**, instead of being installed separately. Likewise, mechanical components of the modular, locking headrail-retention mechanisms **110** and **112** may be positioned at an internal portion of the headrail **108**, rather than at the ends.

As can be seen, the modular, locking headrail-retention mechanisms **110** and **112** may be in a compression fit/friction engagement with engagement surfaces **104** and **106**. In the embodiment shown, the engagement surfaces **104** and **106** may be window sills for a window **102**. Although the embodiment shown in FIG. **1** may be a common use, the functionality of the modular, locking headrail-retention mechanisms described below may be used in other headrail hanging configurations, as would be appreciated by one of ordinary skill in view of this disclosure.

Additionally, the locking headrail-retention mechanisms **110** and **112** may be designed to reduce the amount of light, or the "light gap", around the shade **102**. Traditional installations with fixed brackets can be designed such that the shade **102** substantially fills the window, leaving little room around the shade **102** for light to pass. In certain embodiments, the locking headrail-retention mechanisms **110** and **112** may be thicker than the traditional brackets, leading to the "light gap." In certain embodiments, however, the "light gap" may be minimized by using a low profile body and a strong, highly compressible biasing member.

FIG. **2** shows an isometric view of an example modular, locking headrail-retention mechanism **200**, according to aspects of the present disclosure. The mechanism **200** includes a generally cylindrical housing **208**, which may contain a biasing member, as will be described below. In certain embodiments, the generally cylindrical housing **208** may include at least one flat portion **216** that may facilitate insertion and removal of the mechanism **200**. The housing **208** may be partially closed at one end by a retaining cap **214**, which may be coupled to the housing **208** via screws **212**. As will also be described below, the retaining cap **214** may retain the biasing member and other mechanical features of the mechanism **200** within the housing **208**. A piston **206** may protrude through an opening in the top of the housing **208** and may be directly or indirectly engaged with the retention plate **210**. In certain embodiments, as the retention plate **210** travels toward the housing **208**, the piston **206** may extend further beyond the housing **208** to accommodate the axial movement of the retention plate **210**. In the embodiment shown, the retention plate **210** may be coupled to the bottom portion of a cam **204** that protrudes through an opening in the retaining cap **214**, on a side of the housing **208** opposite the piston **206**. The second cam **204** may be indirectly engaged with the piston **206**. And the piston **206** may move within the housing **208** to accommodate the axial movement of the cam **204** within the housing **208**.

In certain embodiments, the retention plate **210** may include stabilizers **218** to prevent the retention plate **210** from rotating and torquing relative to the housing **208**. In certain embodiments, the retention plate **210** may also include a grip surface **202**. The grip surface **202** may comprise a rubber or plastic insert that is inset within the retention plate **210**. As can be seen, the grip surface **202** may comprise a plurality of protuberances **202***a*, which extend beyond the grip surface **202**. As will be appreciated by one of ordinary skill in the art in view of this disclosure, the plurality of protuberances **202***a* may be deformable and compressible, such that when then contact an engagement surface, they compress and increase the friction between the modular, locking headrail-retention mechanism **200** and an engagement surface. In certain embodiments, the grip surface **202** may not be affixed to the engagement surface, such as by adhesive, and may be removable and reusable as needed.

FIG. **3** shows an expanded, mechanical view of an example modular, locking headrail-retention mechanism **300**, according to aspects of the present disclosure. The mechanism **300** may include a generally cylindrical housing **326** with a connection plate **322** disposed at one end. When the mechanism **300** is assembled, a biasing member **320**, piston **318**, and first cam **328** may be disposed within the housing **326**. Connection plate **322** may be used to couple the housing **326** to a retaining cap **314**, thereby retaining the biasing member **320** and first cam **328** within the housing **326**. in certain embodiments, the connection plate **322** may comprise screw holes **324** which may align with screw holes **330** on retaining cap **314**. Screws **310** may couple the retaining cap **314** to the connection plate **322** on the housing **316**. The retaining cap **314** may for example, impart a static axial force on the biasing member **320** when coupled to the housing **326**.

In certain embodiments, a sleeve **316** may be coupled to one side of the retaining cap **314**. The sleeve **316** may be generally cylindrical and may be sized to fit inside of the housing **326** when the housing **326** and the retaining cap **314** are coupled together. When the mechanism **300** is assembled, the first cam **328** may be positioned within the sleeve **316** and may engage with piston **318**. As can be seen, piston **318** may include a shoulder **318***a* that engages with biasing member **320**, a first portion **318***b* that engages with the first cam **328** and a second portion **318***c* around which the biasing member **320** is at least partially disposed. When the mechanism **300** is assembled, the biasing member **320** may contact a top portion of the housing **326** and impart an axial force on the first cam **328** via the shoulder **318***a* and the first portion **318***b* of the piston **318**.

In certain embodiment, first cam **328** may be operable to selectively prevent the axial force from being imparted to retention plate **306**, as will be described below. For example, in certain embodiments, the first cam **328** may engage with a second cam **312** within the sleeve **316**. The first cam **328** may comprise a first cam interface **328***a* that may engage with a second cam interface (not shown) on the cam **312**. When the mechanism **300** is assembled, a retention plate **306** may be positioned proximate one end of the housing **326**, axially aligned with the first cam **328**, and coupled to a portion of the second cam **312** that protrudes through the retaining cap **314**, using screw **304**. Movement by the retention plate **306** toward the housing **326** may be accompanied by a corresponding axial movement by the second cam **312** toward the top of the housing **326**, which may impart an axial force on the first cam **328** and compress the biasing member **320**. Movement by the retention plate **306** toward the housing **326** may also cause the second cam **312** to impart a rotational force on the cam **328** using a second cam interface, as will be described below. The first cam interface **328** may be operable to engage with an alignment member (not shown) disposed within the housing **326**, such as on an interior surface of the sleeve **316**, to lock the biasing member **320** into a compressed position. Once the first cam **328** locks the biasing member **320** into the compressed position, the axial force of the biasing member **320** may not be imparted on the retention plate **306**. Subsequent movement of the retention plate **306** toward the top of the housing **326** may unlock the first cam **328** and biasing member **320**, allowing the axial force generated by the biasing member to be transmitted to the retention plate **306**.

As can be seen, the retention plate **306** may further comprise a grip surface **302***a*, which may be defined by an insert **302** installed within an inset portion **308** of the retention plate **306**. The insert **302** may be manufactured from rubber or plastic, and may include a surface **302***a* that protrudes beyond the surrounding surface of the retention plate **306**. The surface **302***a* may comprise a plurality of protuberances each with similar size and shape. Like the insert **302**, the protuberances may be manufactured of plastic or rubber, and may deform when they contact an engagement surface. The deformation of the protuberances may increase the contact surface area between the retention plate and the engagement surface, thereby increasing the friction force between the retention plate and the engagement surface. The increased friction force may lead to a headrail that can withstand a greater weight without slippage.

FIGS. **4***a* and **4***b* show a cross section of an example assembled modular, locking headrail-retention mechanism **400**, with the biasing member **420** locked in a compressed position in FIG. **4***b* and unlocked in FIG. **4***a*. As can be seen, the mechanism **400** may include a generally cylindrical housing **402**, with a first cam **416**, a biasing member **420**, a piston **412** and a second cam **424** at least partially disposed therein. The biasing member **420** may be at least partially disposed around the piston **412**, imparting an axial force on a top surface of the housing **402** and on a shoulder of the piston **412**. A bottom portion of the piston **412** may engage the first cam **416**, imparting the axial force on the first cam **416**. In FIG. **4***a*, when the biasing member **420** is unlocked, the first cam **416** may be engaged with and impart the axial force on the retention plate **402** through the second cam **424**, to which the retention plate **402** may be coupled by a screw **406**.

The piston **412**, biasing member **420**, first cam **416**, and second cam **424** may be held within the housing **422** by a retaining cap **410**, which may be coupled to the housing **422** by screws **408**. In addition to holding the elements within the housing **422**, the retaining cap may limit the axial movement of the first cam **416** and the second cam **424** in at least one direction. For example, when the biasing member is unlocked, as in FIG. **4***a*, the first cam **416** may impart the axial force from the biasing member **420** onto the second cam **424**/retention plate **402**, urging the second cam **424**/retention plate **402** away from the housing **422**. In the embodiment shown, the retaining cap **410** may limit the axial distance the retention plate **402** can travel, by contacting a shoulder on the second cam **424**.

The retaining cap **410** may also comprise a sleeve **418** that is at least partially disposed within the housing **402**. As can be seen, both the first cam **416** and the second cam **424** may be at least partially disposed within the sleeve **418**. The sleeve **418** may include at least one integral alignment member **418***a* on an inner surface, which may be used in conjunction with the first cam **416** to selectively prevent the axial force generated by the biasing member **420** from being imparted on the retention plate **402**. For example, as can be seen in FIGS. **4***a* and **4***b* and as will be described in greater detail below, the first cam **416** may include a first cam interface **416***a* with a plurality of grooves spaced radially around a circumference of the cam. In an unlocked state, the grooves in the first cam interface **416***a* may align with the alignment member **418***a*, allowing the first cam **416** to move axially within the housing **422** and sleeve **418**. By moving freely within the sleeve **418**, the first cam **416** is free to impart the axial force from the biasing member **420** onto the second cam **424**/retention plate **402**. In contrast, when the biasing member is locked in a compressed state, as shown in FIG. **4***b*, the first cam interface **416***a* may engage with a top surface of the alignment member **418***a*, preventing first cam **416** from moving axially away from the top of the housing **422** beyond the top of the alignment member **418***a*, and also preventing first cam **416** from imparting the axial force to the second cam **424**/retention plate **402**. As will be described below and appreciated by one of ordinary skill in the art in view of this disclosure, the first cam **416** may be toggled between the unlocked and locked configuration and operable to selectively prevent the axial force of the biasing member **420** from being imparted on retention plate **402**.

In certain embodiments, when the biasing member **420** is locked in the compressed state, the second cam **424** and retention plate **402** may move axially relative to the first cam **416**, confined by the first cam **416** and retaining cap **410**. In such a configuration, the axial force of the biasing member **420** is being imparted on the sleeve **418**, and not the second cam **408**/retention plate **410**. When toggled to an unlocked state, the first cam **416** may engage with the second cam **424**, imparting the axial force of the biasing member **420** to the retention plate **402**. If the retention plate **402** is positioned proximate an engagement surface, the friction engagement surface **404**, which may include a plurality of protuberances, will engage the engagement surface based, at least in part, on the axial force of the biasing member **420**.

FIGS. **5***a-d* show one example embodiment of a first cam that is operable to selectively prevent an axial force from being imparted on a retention plate. As will be described below, the first cam may be operable to selectively prevent a first axial force from being imparted on a retention plate based at least in part, on a second axial force, opposite the first axial force, imparted on the first cam. In particular, FIGS. **5***a-d* show an example progression between a locked state and an unlocked state of a biasing force using a first cam, a second cam, and an alignment member similar to those described above with respect to mechanism **400** in FIGS. **4***a* and **4***b*. FIG. **5***a* shows the first cam interface **502** in an unlocked position, with the alignment member **506** positioned within one of the grooves **502***a* positioned radially around the first cam interface **502**. The first can interface **502** may move axially along the alignment member **506**, urged downward by the axial force of a biasing member (not shown) as indicated by arrow **508**. The first cam interface **502** may engage with the second cam interface **504**, imparting the axial force **508** to the second cam interface **504**, which may transmit the force to a retention plate similar to retention plate **402** in FIGS. **4***a* and **4***b*.

As can be seen in FIG. **5***a*, the first cam interface **502***a* may contact the second cam interface **504** at a plurality of sloped segments **504***a* of the second cam interface **504**. The sloped segments **504***a* of the second cam interface **504** may impart a clockwise rotational force on the first cam interface **502** when an axial force opposite the axial force **508** is applied to the second cam interface **504***a*. FIG. **5***b* illustrates the rotational force as line **512** and the opposite axial force as line **510**. When the alignment member **506** is positioned within grooves **502***a* of the first cam interface **502**, the first cam interface **502** may be prevented from rotating according to the rotational force **512**. When the first cam interface **502** moves axially past a top end of the alignment member **506**, which may occur, for example, when the retention plate in FIGS. **4***a* and **4***b* is compressed toward the cylindrical body, the first cam interface **502** may rotate until a pointed end of the second cam interface **504** contacts a recess **502***b* of the first cam interface **502**. Once the opposite axial force **510** is removed, such as when the retention plate in FIGS. **4***a* and **4***b* is released, the axial force **508** may push the first cam interface **502** toward the alignment member **506**. A top surface of the alignment member **506** may contact a recess **502***b* of the first cam interface **502**, which may prevent further downward axial movement. This configuration is shown in FIG. **5***c*, where the first cam interface **502** prevents the axial force **508** from being imparted on second cam interface **504**. If the first cam interface **502** is again urged past a top end of the alignment member **506**, the second cam interface **504** may impart a rotational force **512** of the first cam interface **502**, causing the pointed end of the second cam interface **504** to contact recess **502***b*. Once the opposite axial force **510** is removed, a groove **502***a* may be aligned with the alignment member **506**, unlocking the mechanism, and allowing the first cam interface **502** to impart axial force **508** on the second cam interface **504**, such as in FIG. **5***a*. Through this toggling, the first cam interface **502** may be operable to selectively prevent an axial force from being imparted on a retention plate connected to the second cam. Above is but one configuration for selectively preventing the axial force from being transmitted; other configurations are possible as would be appreciated by one of ordinary skill in view of this disclosure. Additionally, although the mechanisms described in FIGS. **5***a-d* may be incorporated into a modular, locking headrail-retention mechanism similar to those shown in FIGS. **4***a* and **4***b*, the mechanisms described in FIGS. **5***a-d* may also be implemented directly within a headrail mechanism.

Additionally, a method for positioning and maintaining a headrail in a pre-determined position may incorporate aspects of the present disclosure. The method may include locking a biasing member into a compressed position. The biasing member may be located within a locking, headrail-retention mechanism which may be inserted into an end of the headrail before or after the biasing member is locked. In other embodiments, the biasing member may be manufactured as part of the headrail.

Locking the biasing member into a compressed position may comprise causing a first cam to engage with an alignment member disposed within the headrail. This may be accomplished, for example, by compressing an end of the headrail in an unlocked state until a first cam passes a top surface of an alignment member and then releasing the end of the headrail, as described above. The method may further comprise positioning an end of the headrail proximate to an engagement surface. The engagement surface may comprise, for example, a window sill as described above, or some other engagement surface.

The biasing member may then be unlocked, causing the end of the headrail to form a compression engagement with the engagement surface. Unlocking the biasing member may comprise causing the first cam to disengage with the alignment member. This may be accomplished, for example, by compressing an end of the headrail in a locked state until the first cam passes a top surface of an alignment member and then releasing the end of the headrail, as described above. The biasing member may impart a first axial force on the first cam, and causing the first cam to disengage with the alignment member may comprise imparting a second axial force, opposite the first axial force, on the first cam. Imparting a second axial force on the first cam may comprise using a second cam to impart the second axial force on the first cam, where the second cam also imparts a rotational force on the first cam, as described above. In certain embodiments, once the biasing member is unlocked, most or all of the axial force of the biasing member may urge the end of the headrail toward the engagement surface.

In certain embodiments, the end of the headrail may comprise a retention plate comprising a grip surface with a plurality of protuberances The protuberances may, for example, be manufactured from a plastic or rubber that deform when they contact an engagement surface. The deformation of the protuberances may increase the contact surface area between the retention plate and the engagement surface, thereby increasing the friction force between the retention plate and the engagement surface.

Although the present disclosure has been described in detail, it should be understood that various changes, substitutions, and alterations can be made hereto without departing from the spirit and the scope of the invention as defined by the appended claims.

What is claimed is:

1. A locking headrail-retention mechanism, comprising:
a cylindrical housing sized to engage with a headrail;
a first cam disposed within the cylindrical housing;
a retention plate proximate one end of the cylindrical housing;
a biasing member disposed within the cylindrical housing, wherein the biasing member imparts an axial force on the first cam that biases the first cam toward the retention plate when the first cam is in an unlocked state;
wherein the first cam is operable, while coupled to the retention plate, to selectively prevent the axial force from being imparted on the retention plate.

2. The locking headrail-retention mechanism of claim **1**, further comprising a second cam coupled to the retention plate, wherein the second cam is operable to impart a rotational force on the first cam.

3. The locking headrail-retention mechanism of claim **2**, wherein the second cam comprises a second cam interface that is operable to impart the rotational force on the first cam when the retention plate is moved toward the cylindrical housing.

4. The locking headrail-retention mechanism of claim **2**, wherein the first cam comprises a first cam interface that is operable to engage with an alignment member disposed within the cylindrical housing to lock the biasing member in a compressed position.

5. The locking headrail-retention mechanism of claim **4**, wherein the axial force imparted on the first cam is imparted on the retention plate when the biasing member is unlocked from the compressed position.

6. The locking headrail-retention mechanism of claim **1**, wherein the retention plate comprises a grip surface.

7. The locking headrail-retention mechanism of claim **6**, wherein the grip surface comprises a plurality of protuberances.

8. The locking headrail-retention mechanism of claim **1**, further comprising a piston, wherein:
the piston engages with the first cam;
the biasing member is at least partially disposed around the piston; and
the biasing member imparts an axial force on a shoulder of the piston.

9. The locking headrail-retention mechanism of claim **8**, wherein the biasing member comprises a spring.

10. A locking headrail-retention mechanism, comprising:
a cylindrical housing;
a piston disposed within the cylindrical housing;
a biasing member at least partially disposed around the piston;

a first cam axially movable within the cylindrical housing, wherein the first cam is engaged with the piston and the biasing member imparts a first axial force on the first cam;

a retention plate proximate one end of the cylindrical housing;

a second cam coupled to the retention plate and axially movable within the cylindrical housing, wherein the second cam is operable to impart a second axial force, opposite the first axial force, on the first cam when the retention plate is moved toward the cylindrical housing; and

wherein the first cam is operable to selectively prevent the first axial force from being imparted on the retention plate, based at least in part, on the second axial force.

11. The locking headrail-retention mechanism of claim **10**, wherein the second axial force cause the first cam to toggle between a locked position and an unlocked position.

12. The locking headrail-retention mechanism of claim **11**, wherein the retention plate comprise a grip surface with a plurality of protuberances.

13. A locking headrail-retention mechanism, comprising:

a cylindrical housing sized to engage with a headrail;

a first cam disposed within the cylindrical housing;

a retention plate proximate one end of the cylindrical housing; and

a biasing member disposed within the cylindrical housing and lockable in a compressed position, wherein the biasing member imparts an axial force on the first cam;

wherein the retention plate is axially movable relative to the first cam when the biasing member is locked in the compressed position, and the first cam is operable to selectively prevent the axial force from being imparted on the retention plate.

14. The locking headrail-retention mechanism of claim **13**, further comprising a second cam coupled to the retention plate, wherein the second cam is operable to impart a rotational force on the first cam.

15. The locking headrail-retention mechanism of claim **14**, wherein the second cam comprises a second cam interface that is operable to impart the rotational force on the first cam when the retention plate is moved toward the cylindrical housing.

16. The locking headrail-retention mechanism of claim **14**, wherein the first cam comprises a first cam interface that is operable to engage with an alignment member disposed within the cylindrical housing to lock the biasing member in a compressed position.

17. The locking headrail-retention mechanism of claim **16**, wherein the axial force imparted on the first cam is imparted on the retention plate when the biasing member is unlocked from the compressed position.

18. The locking headrail-retention mechanism of claim **13**, wherein the retention plate comprises a grip surface.

19. The locking headrail-retention mechanism of claim **18**, wherein the grip surface comprises a plurality of protuberances.

20. The locking headrail-retention mechanism of claim **13**, further comprising a piston, wherein:

the piston engages with the first cam;

the biasing member is at least partially disposed around the piston; and

the biasing member imparts an axial force on a shoulder of the piston.

21. The locking headrail-retention mechanism of claim **20**, wherein the biasing member comprises a spring.

22. A locking headrail-retention mechanism, comprising:

a cylindrical housing sized to engage with a headrail;

a first cam disposed within the cylindrical housing;

a retention plate proximate one end of the cylindrical housing;

a biasing member disposed within the cylindrical housing, wherein the biasing member imparts an axial force on the first cam; and

an alignment member disposed within the cylindrical housing, the first cam configured to move axially relative to the alignment member when the first cam is in an unlocked state;

wherein the first cam is operable, while coupled to the retention plate, to selectively prevent the axial force from being imparted on the retention plate.

23. The locking headrail-retention mechanism of claim **22**, further comprising a second cam coupled to the retention plate, wherein the second cam is operable to impart a rotational force on the first cam.

24. The locking headrail-retention mechanism of claim **23**, wherein the second cam comprises a second cam interface that is operable to impart the rotational force on the first cam when the retention plate is moved toward the cylindrical housing.

25. The locking headrail-retention mechanism of claim **23**, wherein the first cam comprises a first cam interface that is operable to engage with an alignment member disposed within the cylindrical housing to lock the biasing member in a compressed position.

26. The locking headrail-retention mechanism of claim **25**, wherein the axial force imparted on the first cam is imparted on the retention plate when the biasing member is unlocked from the compressed position.

27. The locking headrail-retention mechanism of claim **22**, wherein the retention plate comprises a grip surface.

28. The locking headrail-retention mechanism of claim **27**, wherein the grip surface comprises a plurality of protuberances.

29. The locking headrail-retention mechanism of claim **22**, further comprising a piston, wherein:

the piston engages with the first cam;

the biasing member is at least partially disposed around the piston; and

the biasing member imparts an axial force on a shoulder of the piston.

30. The locking headrail-retention mechanism of claim **29**, wherein the biasing member comprises a spring.

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